IN THE CLAIMS:

Please cancel Claims 3, 4 and 7 without prejudice or disclaimer of the subject matter recited therein.

Please amend Claims 1, 5, 8, 9 and 12-15 as follows.

1.   (Currently Amended) A method of rendering a scan line of a graphic object image in a scan line renderer for spans of pixels lying between consecutive x-ordered edges intersecting said scan line, said method ~~includes a step~~ comprising the steps of:

maintaining a set of depths present in the rendering of said scan line, where the set of depths is maintained using a content addressable memory, said set being maintained in depth order, and for each span, said set containing at least those depths that are active in said span, and said set being subject to removal of at least one depth at a subsequent span on said scan line where the corresponding depth is no longer active on said scan line, where said content addressable memory is addressed by at least depth, and references fill information related to graphic objects active in said span;

partitioning said set of depths into those that potentially contribute to the raster data output of the current span and those depths that presently do not, said set of depths being maintained in said depth order, where said depth ordering is separately imposed on said contributing partition and said non-contributing partition;

forming a combined index for each said depth in said span, each said combined index having a most significant part that indicates a corresponding one of said partitions and a least significant part indicating said separately imposed depth ordering;

ordering of said combined indices to provide said partitioning and said depth ordering, said ordering of said combined indices being achieved by means of a map;

associating said combined index of each said depth in said set of depths with a corresponding further depth, said further depth indicating both said partitioning by contribution and the relative ordering of depths in each partition on said span;

mapping, using said map from each said further depth to said associated combined index of each depth in said set of depths; and

reusing said set of depths and said map from said span to span in increasing x order, wherein

said set of depths and said map maintaining an ordered state during addition and removal changes in contribution status of a depth in said set of depths.

2.   (Previously Presented) A method according to claim 1 wherein said set of depths is updated on a per-span basis.

Claims 3 and 4.   (Cancelled).

5.   (Currently Amended) A method according to claim [[4]] 1 wherein said depth order of said set of depths is maintained using a map according to the steps of:

associating said depths in said set of depths with a corresponding second depth indicating a relative ordering of depths on said span;

using said map to map from each said second depth to each associated depth in said set of depths;

reusing said set of depths and said map from span to span in increasing x order; and

maintaining an ordered state of said set of depths and said map during addition and removal of depths from said set of depths.

6.   (Previously Presented) A method according to claim 5 wherein when a depth is being added to said set of depths, said maintaining comprises the steps of:

marking each depth in said set of depths as being either above or below said added depth, thereby producing a set of marks;

ordering said set of marks in the same order as that of said set of depths stored in said content addressable memory;

reordering said set of marks in the order of their associated second depths as determined by said map; and

reordering said map to reflect the new ordering of said depths as stored in the content addressable memory by their associated second depth, including said added depth, said reordering of said map uses said reordered set of marks.

Claim 7.   (Cancelled).

8.   (Currently Amended) A method according to claim [[7]] 1 wherein when a depth is being added to said set of depths, said method further comprising:

tagging said added depth as being contributing or not contributing, thereby providing said combined index for the added depth;

marking each depth in said set of depths as being above or below said added depth, in terms of said corresponding combined index, thereby producing a set of marks, said set of marks being ordered in the same order as said set of depths and being stored in said content addressable memory;

reordering said set of marks in the order of each corresponding said combined index as determined by said map; and

reordering said map to reflect the new ordering of said depths as stored in the content addressable memory by their associated further depth, including said added depth, wherein said reordering of said map is dependent on said reordered set of marks.

9.   (Currently Amended) A method according to claim [[7]] 1 wherein when a depth in said set of depths is changing from contributing to non-contributing, said method comprises the steps of:

marking each depth in said set of depths in the contributing partition if it is below the changing depth, and similarly marking each depth in said set of depths in the non-contributing partition if it is above the changing depth, thereby producing a set of marks, said set of marks being ordered in the same order that said subset of depths are stored in said content addressable memory;

reordering said set of marks in the order of their said combined indices as determined by said map; and

reordering said map to reflect the ordering of said depths as stored in the content addressable memory by their associated further depth, including the change in contribution status of said changing depth, said reordering of said map using said reordered set of marks.

10.   (Previously Presented) A method according to claim 1 wherein said rendering determines the raster data output for said span and wherein each depth is associated with a corresponding fill, said method further comprising the step of:

using said set of depths and said fill associated with each depth in said set of depths to produce a subset of fills wherein said depth order of said set of depths provides a depth ordering of said subset of fills.

11.   (Original) A method according to claim 1 wherein said method provides input to a raster image processor and said input is in the form of a tree of graphic objects, said tree being ordered by local depths, each said graphic object being associated with one or more fills, each fill in each said graphic object being associated with a local depth such that the local depth of fills are local to their graphic object and each graphic object is associated with a local depth, and wherein the local depth of each said graphic object is local to a corresponding parent graphic object, said method comprising the steps of:

determining each of the depth associated with a corresponding said graphic object by traversing said tree of graphic objects in a depth first traversal of the tree; and

traversing the fills associated with each said graphic object in local depth order; and

assigning a sequential depth to fills as they are encountered in said traversal.

12.   (Currently Amended) A method according to claim [[3]] 1 wherein said content addressable memory is formed in hardware.

13.   (Currently Amended) A method according to claim [[3]] 1 wherein said content addressable memory is implemented by software.

14.   (Currently Amended) A computer readable storage medium having a program recorded thereon and adapted to make a computer device render a scan line of a graphic object image in a scan line renderer for a span of pixels lying between consecutive x-ordered edges intersecting said scan line, said program comprising:

code for maintaining a set of depths present in the rendering of said scan line, where the set of depths is maintained using a content addressable memory, said set being maintained in depth order, and for each span, said set containing at least those depths that are active in said span, and said set being subject to removal of at least one depth at a subsequent span on said scan line where the corresponding depth is no longer active on said scan line, where said content addressable memory is addressed by at least depth, and references fill information related to graphic objects active in said span;

code for partitioning said set of depths into those that potentially contribute to the raster data output of the current span and those depths that presently do not, said set of depths being maintained in said depth order, where said depth ordering is separately imposed on said contributing partition and said non-contributing partition;

code for forming a combined index for each said depth in said span, each said combined index having a most significant part that indicates a corresponding one of said partitions and a least significant part indicating said separately imposed depth ordering;

code for ordering of said combined indices to provide said partitioning and said depth ordering, said ordering of said combined indices being achieved by means of a map;

code for associating said combined index of each said depth in said set

of depths with a corresponding further depth, said further depth indicating both said partitioning

by contribution and the relative ordering of depths in each partition on said span;

code for mapping, using said map from each said further depth to said

associated combined index of each depth in said set of depths; and

code for reusing said set of depths and said map from said span to span

in increasing x order, wherein

said set of depths and said map maintaining an ordered state during

addition and removal changes in contribution status of a depth in said set of depths.

15.   (Currently Amended) A computerized apparatus for rendering a scan

line of a graphic object image in a scan line renderer for a span of pixels lying between

consecutive x-ordered edges intersecting said scan line, said apparatus comprising a processor

adapted to perform the steps of:

~~to maintain~~ maintaining a set of depths present in the rendering of said

scan line, where the set of depths is maintained using a content addressable memory, said set

being maintained in depth order, and for each span, said set containing at least those depths that

are active in said span, and said set being subject to removal of at least one depth at a subsequent

span on said scan line where the corresponding depth is no longer active on said scan line, where

said content addressable memory is addressed by at least depth, and references fill information

related to graphic objects active in said span;

partitioning said set of depths into those potentially contribute to the raster data output of the current span and those depths that presently do not, said set of depths being maintained in said depth order, where said depth ordering is separately imposed on said contributing partition and said non-contributing partition;

forming a combined index for each said depth in said span, each said combined index having a most significant part that indicates a corresponding one of said partitions and a least significant part indicating said separately imposed depth ordering;

ordering of said combined indices to provide said partitioning and said depth ordering, said ordering of said combined indices being achieved by means of a map;

associating said combined index of each said depth in said set of depths with a corresponding further depth, said further depth indicating both said partitioning by contribution and the relative ordering of depths in each partition on said span;

mapping, using said map from each said further depth to said associated combined index of each depth in said set of depths; and

reusing said set of depths and said map from said span to span in increasing x order, wherein

said set of depths and said map maintaining an ordered state during addition and removal changes in contribution status of a depth in said set of depths.

Claims 16-18.   (Cancelled).